

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (currently amended) A balloon catheter having a spirally folded balloon comprising:  
a catheter body having a proximal end and a distal end; and  
a radially expansible balloon near the distal end of the catheter body, the balloon ~~comprising~~ having an outer surface, a proximal end, a distal end, and at least one permanent fold line formed on the balloon prior to folding, the fold line extending helically from the proximal end to the distal end along of the outer surface of the balloon.
2. (currently amended) A balloon catheter as in claim 1, wherein ~~the radially expansible balloon comprises~~ from two to five helical fold lines extending ~~extend~~ helically along ~~at least a portion of~~ over the surface of the balloon.
3. (currently amended) A balloon catheter as in ~~any one of claims 1 or 2~~ claim 2, wherein ~~each fold line is~~ all fold lines are parallel to each other.
4. (original) A balloon catheter as in claim 3, wherein the fold lines are equally spaced apart.
5. (currently amended) A balloon catheter as in any one of claims 1 ~~or 2~~ to 4, wherein the at least one fold line comprises a groove in the outer surface of the balloon.
6. (currently amended) A balloon catheter as in any one of claims 1 ~~or 2~~ to 4, wherein the at least one fold line comprises a crease in the balloon.

7. (currently amended) A balloon catheter as in any one of claims 1 ~~or 2~~ to 4, wherein the balloon is folded along the preformed fold lines to form lobes.
8. (currently amended) A balloon catheter as in any one of claims 1 ~~or 2~~ to 4, wherein the balloon is folded along the preformed fold lines to form flaps.
9. (currently amended) A balloon catheter as in claim 1 ~~or 2~~ to 4, further comprising a scoring structure adjacent to the fold lines disposed over the balloon.
10. (currently amended) A balloon catheter as in claim 9, wherein the scoring structure comprises at least one scoring element ~~spirally~~ helically circumscribing the balloon and aligned with the at least one helical fold line.
11. (original) A balloon catheter as in claim 10, wherein the scoring element continuously circumscribes the balloon.
12. (original) A balloon catheter as in claim 10, wherein the scoring element comprises a plurality of segments.
13. (original) A balloon catheter as in claim 10, wherein the scoring element comprises a wire.
14. (original) A balloon catheter as in claim 10, wherein the scoring element is secured to an outer surface of the balloon.
15. (currently amended) A balloon catheter comprising:  
a catheter body having a proximal end and a distal end; and  
a radially expansible balloon near the distal end of the catheter body, the balloon comprising having an outer surface, a proximal end, a distal end, and at least one ~~recess~~ groove permanently formed in the surface and extending helically along at least a portion from the

proximal end to the distal end of the surface of the balloon, wherein the balloon is folded along the groove to form at least once recess; and

at least one helical scoring structure located within the helical recess of the balloon, wherein the helical recess shields the scoring structure from exposure when the balloon is not expanded.

Claim 16. (cancelled).

17. (currently amended) A balloon catheter as in claim 46 15, wherein the scoring element continuously circumscribes the balloon.

18. (currently amended) A balloon catheter as in claim 46 15, wherein the scoring element comprises a plurality of segments.

19. (currently amended) A balloon catheter as in claim 46 15, wherein the scoring element comprises a wire.

20. (currently amended) A balloon catheter as in claim 46 15, wherein the scoring element is not secured to an outer surface of the balloon.

Claims 21-53 (cancelled).

22. (currently amended) A method of treating a body lumen of a patient, the method comprising:

providing a catheter having a balloon with at least one fold line permanently formed in the wall of the balloon and extending helically along the entire outer surface of the balloon,

inserting the catheter with the balloon in its helically-folded state along the at least one fold line into the body lumen;

advancing the catheter to a treatment site within the lumen; and

inflating the balloon to engage a wall of the lumen to treat the lumen.

23. (currently amended) A method as in claim 22, further comprising:  
deflating the balloon so that the ~~at least one fold~~ balloon collapses into the a  
helically compressed state with lobes or flaps along the fold line(s) to disengage the wall of the  
lumen; and

removing the catheter from the lumen

Claims 24-53 (cancelled).

54. (currently amended) A method of treating a body lumen of a patient, the  
method comprising:

providing a catheter having a balloon having an outer surface with at least one  
fold line permanently formed in an outer surface ~~the wall~~ of the balloon and extending helically  
over the entire along the outer surface of the balloon;

~~inserting the catheter in its helically folded state into the body lumen~~ with the  
balloon helically folded along the fold line;

advancing the catheter to a treatment site within the lumen; and

inflating the balloon to engage a wall of the lumen to treat the lumen.

55. (currently amended) A method as in claim 54, further comprising:  
deflating the balloon so that the balloon helically ~~at least one fold~~ collapses along  
the fold line ~~into the helically compressed state to~~ disengage the wall of the lumen; and  
removing the catheter from the lumen.

Claims 56-73 (cancelled).